

CLAIMS

1. Use of a catalyst for heterogeneous catalysis comprising a β -SiC support and at least one active phase, the said catalyst being obtainable by using a process comprising at least the following steps:
 - (a) impregnation of the said support having a specific surface area, determined by the BET nitrogen adsorption method at the temperature of liquid nitrogen according to standard NF X 11-621, equal to at least 2 m²/g and comprising at least one active phase precursor, the said impregnation being done by an impregnation process comprising at least a first impregnation step during which the said support is impregnated at least once by a polar agent A, and a second impregnation step during which the said support is impregnated at least once by an agent B less polar than agent A, knowing that at least agent B comprises at least one active phase precursor,
 - (b) thermal breakdown of the said precursor,
- the said use being as a catalyst for chemical reactions selected among oxidation of methane or other hydrocarbons, oxidation of carbon monoxide, or as a catalyst for depollution of exhaust gases of vehicles with internal combustion engines.
2. Use according to claim 1, characterised in that the said active phase precursor is a metallic compound.
3. Use according to claim 2, characterised in that the metal contained in the said metallic compound of agent A and / or agent B is selected among the group composed of the Fe, Ni, Co, Cu, Pt, Pd, Rh, Ru, Ir elements.
4. Use according to claim 2 or 3, characterised in that the said metallic compound contained in the said agents is either a salt solved in a solvent, or an organo-metallic compound.

5. Use according to claim 4, characterised in that the said organo-metallic compound is either dissolved in a solvent, or used in its pure state.
6. Use according to any one of claims 1 to 5, characterised in that the said support is in the form of balls, fibres, tubes, filaments, felt, extruded materials,
5 foams, monoliths or pellets.
7. Use according to any one of claims 1 to 6, characterised in that the said support has a BET specific surface area more than $2 \text{ m}^2/\text{g}$, preferably more than $10 \text{ m}^2/\text{g}$, and even better, more than $20 \text{ m}^2/\text{g}$.
8. Use according to any one of claims 1 to 7, characterised in that the said
10 support has a BET specific surface area between 1 and $100 \text{ m}^2/\text{g}$.
9. Use according to any one of claims 1 to 8, characterised in that the said support comprises macropores with a size between 0.05 and $10 \mu\text{m}$, and optionally also mesopores with a size between 4 and 40 nm.
10. Use according to claim 9, characterised in that the said macropores have a
15 size between 0.05 and $1 \mu\text{m}$.
11. Use according to one of claims 1 to 10, characterised in that the maximum size distribution of the said macropores is between 0.06 and $0.4 \mu\text{m}$, and preferably between 0.06 and $0.2 \mu\text{m}$.
12. Use according to any one of claims 1 to 11, characterised in that the
20 impregnation method (a) comprises also at least one drying step after the first and / or the second impregnation step.
13. Use according to any one of claims 1 to 12, characterised in that the impregnation method (a) comprises also at least a preliminary treatment of the support that introduces hydrophobic and / or hydrophilic functions on the surface
25 of the said support.

14. Use according to any one of claims 1 to 13, characterised in that the said precursor at least partially forms a metallic oxide during its thermal breakdown.
15. Use according to claim 14, characterised in that the thermal breakdown of the said precursor is followed by a treatment under a reactive gas.
- 5 16. Use according to claim 14 or 15, characterised in that the said treatment under a reactive gas is a reduction treatment.
17. Use according to claim 16, characterised in that the said reduction treatment has been carried out in an atmosphere containing hydrogen H₂.
18. Use according to one of claims 1 to 17, characterised in that the support,
10 which has been dried after the last impregnation step, is calcined under air at a temperature between 200°C and 500°C, and preferably between 300°C and 400°C.
19. Method of impregnation of a β-SiC support with a specific surface area, determined by the BET nitrogen adsorption method at the temperature of liquid
15 nitrogen according to standard NF X 11-621, equal to at least 1 m²/g and comprising macropores with a size between 0.05 and 10 µm, and optionally also mesopores with a size between 4 and 40 nm, the said process comprising at least the following steps:
 - (a) a first impregnation step during which the said support is
20 impregnated at least once by a polar agent A,
 - (b) a second impregnation step during which the said support is impregnated at least once by an agent B less polar than agent A,
and in which process at least one agent B among the said agents A and B comprises at least one active phase precursor.
- 25 20. Method according to claim 19, characterised in that the said support has a specific surface area equal to at least 10 m²/g.

21. Method according to claim 20, characterised in that the average size of the said macropores of the said support is between 0.05 and 1 μm .
22. Method according to claims 19 to 21, characterised in that the maximum value in the distribution of the said macropores by size is between 0.06 and 0.4
5 μm , and preferably between 0.06 and 0.2 μm .
23. Product that can be obtained using the method according one of claims 19 to 22.